

VESSEL FOR WITHDRAWING BLOOD

CROSS REFERENCE TO RELATED APPLICATIONS

Applicant claim priority under 35 U.S.C. §119 of GERMAN Application No. 198 36 559.4 filed AUGUST 12, 1998. Applicant also claims priority under 35 U.S.C. §120 of PCT/EP99/05857 filed on AUGUST 12, 1999. The international application under PCT article 21 (2) was not published in English.

The present invention relates to a vessel for withdrawing blood, and the blood withdrawn should especially be used for stabilizing and analyzing nucleic acids.

When blood is taken, it is normally collected in vessels which already contain anticoagulants such as heparin, citrate or EDTA. The blood is thereby prevented from coagulating. The blood samples obtained thereby can be stored at suitable temperatures for a long time. This way of obtaining blood has, however, considerable drawbacks when nucleic acids such as (m)RNA or DNA are to be analyzed. For such purposes the nucleic acids contained in the sample should optimally be stabilized already at the moment of withdrawal, i.e. a degradation of the existing nucleic acids should be prevented, but also the new synthesis of mRNA.

This objective of a stable storage of the nucleic acids contained in the sample material, i.e. from the moment of withdrawal, has not been achieved yet in practice for the following reasons:

Cells contain nucleases, enzymes, which destroy nucleic acids as soon as they come into contact with the substrates thereof (RNA, DNA). The effect of cellular and extracellular nucleases is normally under physiological control as long as the cells are in their normal environment. The withdrawal of blood effects more or less strong changes in the nucleic acids contained in the cells. Nucleases are then released within the cells and/or by the lysis of cells to the outside. Moreover, nucleic acids are synthesized more or less strongly. In particular the long-term storage of blood leads to aging and destruction of the cells.